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HAIR TREATMENT COMPOSITIONS CONTAINING XANTHINE AND ALPHA HYDROXY ACID

FIELD OF THE INVENTION

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The invention relates to hair treatment compositions. The compositions are particularly suitable to style and lengthen hair.

10 BACKGROUND AND PRIOR ART

For centuries long hair has been a desirable attribute. To achieve this straightening devices are sold that mechanically lengthen and straighten the hair, a selection 15 of such devices are disclosed in EP 0 511 892 and WO12/32381 An alternative to the above mechanical approach to lengthen the hair is to stimulate hair growth using chemical hair growth stimulants, such products are disclosed in EP 0 897 712 and WO92/07877.

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The use of xanthines in hair and skin pigmentation is described in US 5470579. US 4931066 discloses that xanthines can be used together with other compounds in hair dyeing.

25 Xanthines have also been claimed as being useful in the treatment of hair loss. For example, WO 85/05270, WO 84/04038, FR 2 751 541 and WO 85/05272 all disclose hair loss treatments containing caffeine or theophylline as phosphodiesterase inhibitors. A hair nourishing lotion or

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shampoo containing caffeine and the hair loss treatment compound minoxidil is described in JP 04-193821.

The present application discloses formulations and processes 5 for lengthening hair. The invention has the further advantages that it prevents the hair frizzing and increasing in volume. Yet another advantage is that it increases the hair's susceptibility and hold to styling in humid conditions.

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DESCRIPTION OF THE INVENTION

In a first aspect, the present invention provides a method of treating hair comprising the step of applying to the hair 15 a leave on hair treatment composition comprising:

- i) an α-hydroxy acid and/or its salt; and
- ii) a xanthine, a substituted xanthine or mixtures thereof

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A further aspect of the invention is the use of

- i) a α-hydroxy acid and/or its salt; and
- ii) a xanthine, a substituted xanthine or mixtures thereof

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for styling hair, in particular lengthening, reducing the volume and increasing the high humidity style retention of the hair.

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Xanthines may be used in the present invention singly or together with one or more other different xanthines.

The hair treatment composition of the invention preferably 5 comprises from 0.1 to 20 wt% of xanthine/substituted xanthine in the total formulation.

α -Hydroxy acid

10 The formulations of the invention comprise an α -Hydroxy acid. The hydroxy acid and/or its salt is preferably a bis (α -hydroxy acid) and/or its salt.

15 The α -hydroxy acid can comprise one or more carboxylic acid groups, at least one of these carboxylic acid groups should have an α -hydroxy group.

It is particularly preferred an α -hydroxy acid and/or its salt if optically active is in the L-form such as those derived from natural sources, particularly preferred α - 20 hydroxy acid are citric acid and tartaric acid and/or their salts.

The amount of α -Hydroxy acid i) is from 0.1 to 20 wt% in the total formulation.

25 The total amount of the xanthine and α -Hydroxy acid in hair treatment compositions of the invention is generally from 0.2 to 40 wt%, preferably from 1 to 10 wt%, more preferably from 2 to 5 wt%.

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The weight ratio of xanthine to α -Hydroxy is preferably from 1:0.001 to 0.001:1, preferably from 1:0.01 to 0.01:1, most preferably from 3:1 to 1:3.

5 Product Form

The final product form of hair treatment compositions according to the invention may suitably be, for example, shampoos, conditioners, sprays, mousses, gels, waxes or 10 lotions. Particularly preferred product forms are, post-wash conditioners (leave-in) and hair treatment products such as hair essences.

15 Shampoo compositions preferably comprise one or more cleansing surfactants which are cosmetically acceptable and suitable for topical application to the hair. Further surfactants may be present as emulsifiers.

20 Suitable cleansing surfactants, are selected from anionic, amphoteric and zwitterionic surfactants, and mixtures thereof. The cleansing surfactant may be the same surfactant as the emulsifier, or may be different.

Anionic Cleansing Surfactant

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Shampoo compositions according to the invention will typically comprise one or more anionic cleansing surfactants which are cosmetically acceptable and suitable for topical application to the hair.

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CLAIMS

1. A method of treating hair comprising the step of applying to the hair a leave on hair treatment composition comprising:
 - i) an α -hydroxy acid, its salt or mixtures thereof; and
 - ii) a xanthine, substituted xanthine or mixtures thereof.
2. A method according to claim 1 in which the xanthine substituted xanthine ii) of the hair treatment composition has the following formula:

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The chemical structure shows a purine ring system. The imidazole ring is fused to the purine ring. The imidazole ring has an R¹ group at position 4 and an R³ group at position 5. The purine ring has an R² group at position 6.
3. A method according to claim 2 in which R¹, R² and R³ of the xanthine/substituted xanthine ii) are independently selected from H, C₁-C₅ alkyl groups, substituted or unsubstituted C₂-C₅ alkenyl groups, aryl groups, arylalkyl groups or mixtures thereof.

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4. A method according to claim 3 in which R¹, R² and R³ of ii) are independently selected from H, methyl groups or mixtures thereof.
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5. A method according to any preceding claim in which the xanthine derivative ii) is caffeine.
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6. A method according to any preceding claim in which the α -hydroxy acid and/or its salt i) is a citric acid and/or its salt.
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7. A method according to any one of claims 1 to 5 in which the α -hydroxy acid and/or its salt i) is a bis (α - hydroxy acid) and/or its salt.
8. A method according to claim 7 in which the an α - hydroxy acid i) is tartaric acid or its salt.
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9. A method according to any preceding claim in which the an α -hydroxy acid and/or its salt if optically active is in the L-form.
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10. A method according to any preceding claim in which the total amount of acid/salt i) is from 0.1 to 20 wt% in the total formulation.
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11. A method according to any preceding claim in which the total amount xanthine ii) is from 0.1 to 20 wt% in the total formulation.

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12. A method according to any preceding claim in which the hair treatment composition further comprises a surfactant.
- 5 13. A hair treatment composition according to any preceding claim, in which the hair treatment composition further comprises a cationic, or silicone based conditioning agent.
- 10 14. A method according to any preceding claim in which the hair treatment composition further comprises a styling agent.
- 15 15. A method according to any preceding claim in which the hair treatment composition comprises an aqueous base.
16. Use of a composition as described in any preceding claim for styling the hair.
- 20 17. Use of i) an α -hydroxy acid, its salts or mixture therefor; and ii) a xanthine, substituted xanthine or mixtures thereof for lengthening hair and or decreasing the volume of hair.
- 25 18. Use of a i) an α -hydroxy acid its salts or mixtures thereof; and ii) a xanthine, substituted xanthine or mixtures thereof for increasing the high humidity style retention of hair.